

Monday 30th Jan, AM (IndOOS Review workshop: IOP/SIBER/IO-GOOS/IRF)

Day 1: IOP and SIBER panel members and invited speakers will give broad review talks on the essential science questions and societal needs for Indian Ocean observations.

08h30-08h45: General introduction and objectives of the workshop

- Sustainable Indian Ocean observations (IndOOS): Why are we doing an IndOOS review and how are we going to proceed? (**Lisa Beal** and **Jerome Vialard**, IORP co-chairs)

08h45-10h45 : Scientific drivers: IO coupled modes of variability

(Rapporteur: **Weiqing Han**)

- Interannual climate variability and its role for climate forecasting (**Harry Hendon**, BOM)
- Effect of IO on monsoons and rainfall and future ocean observation needs from a monsoon/rainfall research perspective (**Caroline Ummenhofer**, WHOI, with inputs from A. Turner & H. Annamalai)
- The Madden-Julian oscillation and monsoon active-break phases, and their impact on the ocean (**Toshiaki Shinoda**, TAMU)
- Air-sea interaction over the Eastern Indian Ocean and meridional circulation from observations (**Takanori Horii**, JAMSTEC)

11h15-12h30 : Scientific drivers: oceanic variability and change (Rapporteur: **Ming Feng**)

- Natural decadal variability of the Indian Ocean (**Jerome Vialard**, IRD)
- Indian Ocean response to climate change (**Roxy Matthew Koll**, Indian ITM)
- Rapid changes in boundary currents and implications for IO heat transport and overturning (**Lisa Beal**, U. Miami)

Monday 30th Jan, PM (IndOOS Review workshop: IOP/SIBER/IO-GOOS/IRF)

14h00-15h30 : Scientific drivers: physical and biogeochemical processes of the IO (Rapporteur: **Makio Honda**)

- Eddies and their impacts on the carbon cycle, biogeochemistry, heat and freshwater budgets: Should IndOOS be measuring eddies? How? (**Amit Tandon**, U. Mass-Dartmouth, with input from A. Mahadevan, WHOI)
- Indonesian Throughflow, its interactions with the Pacific, its influence on the Indian Ocean heat budget and biogeochemistry, and its variability and change (**Dwi Susanto**, U. Maryland)
- Iron limitation, hypoxia, and other important Biogeochemical / ecological variability and change in the IO (**Jerry Wiggert**, U. Southern Mississippi)

16h00-17h00 : Rapporteurs will synthesise into a brief summary the scientific (and operational) drivers that IndOOS should address, seeking discussion and input from the group

17h15 : Opening Ceremony

18h00-20h00 : Icebreaker

Tuesday 31st Jan, AM (IndOOS Review workshop: separate IOP/IOGOOS/IRF & SIBER sessions until 11h30)

Day 2: Panel members and invited speakers will provide background on past and present IndOOS, and a look forward to the role of new technologies.

8h30-10h00 : 2006-2016, 10 years of IndOOS and looking ahead (Rapporteur: Lin Liu)

- RAMA : design, history, current state, scientific achievements and looking ahead (**Mike McPhaden**, NOAA-PMEL)
- Indian Ocean Argo and drifters: history, current state, scientific achievements and looking ahead (**M. Ravichandran** Director NCAOR, with input on drifters from Boris Kelly-Gerreyn, BOM)
- Ship of opportunity XBT (and ADCP?) lines and monitoring of Boundary currents / exchange flows in the IO. Past achievements and future role (**Ming Feng**, CSIRO)

10h30-11h30 : Scientific drivers: IndOOS re-analysis products (Rapporteur: Roxy Mathew Koll)

- The state of air-sea flux observations and the quality of atmospheric re-analysis products (**Lisan Yu**, WHOI)
- Applications of ocean re-analysis products in IO and quality and gaps (**Tony Lee**, JPL)

11h30-12h30 : 2006-2016, 10 years of IndOOS and looking ahead (Rapporteur: Greg Cowie)

- Research ship-based observations (GoSHIP/GeoTRACES etc) in the Indian Ocean, the history, current state, scientific achievements, and future role in IndOOS (**Bernadette Sloyan**, CSIRO)
- A review of past biogeochemical measurements and instrumentation, associated science results and looking ahead with new technologies (**Raleigh Hood**, U. Maryland)

Tuesday 31st Jan, PM (IndOOS Review workshop:IOP/SIBER/IO-GOOS/IRF)

14h00-16h00 : Looking towards new technologies for IndOOS (Rapporteur: Toshiaki Shinoda)

- Satellite instrumentation and missions: Past and future missions and role in IO observing (**Tony Lee** NASA)
- Deep & Bio Argo: Technological advancement, applications, future role in sustained observations of IO (**Nick Hardman-Mountford**, CSIRO)
- Gliders: Technological advancement, applications, future role in sustained measurements of IO (**Craig Lee**, U. Washington)
- CRIES: technological advancement, applications, future role in ocean observing (**Magdalena Andres**, WHOI)

16h30-17h30 : Rapporteurs will synthesise into a brief summary how the components of IndOOS (and future technologies) serve (can serve) the scientific and operational drivers, seeking discussion and input from group

Wednesday 1st Feb, AM (Joint strategic Discussions around IndOOS review: IOP/SIBER/IO-GOOS/IRF)

The main objective of this day is to frame the IndOOS review white paper that will be the starting point for the IndOOS review wrap-up in Jan/Feb 2018. At the end of the day, we want to have designed an outline to the white paper and designated a team of authors, with lead authors for each chapter.

08h30-09:00 : Guidance and Lessons from Pacific and Atlantic reviews

How did they approach review? What expert information was most useful? What have been the biggest challenges? Recommendations for IOP going into this process?

- OOPC (GCOS/GOOS) guidance (**Bernadette Sloyan**, OOPC co-Chair, with input from Katy Hill, GCOS/GOOS/JCOMM)
- Lessons from the TPOS review (**Jerome Vialard** with inputs from S. Cravatte and N. Smith)
- Goals and ground rules for breakout sessions. Announcing of groups and rapporteurs (**Lisa Beal**)

09h00-10h00 : Break-out discussion 1 (groups of ~6)

- What scientific and operational outcomes should IndOOS achieve? (start with Rapporteur summaries from day 1)

10h00-10h30 : Report back

- 5-minute pop-up report from each break-out group rapporteur and synthesis of ideas (facilitator **Jerome Vialard**)

11h00-12h00 : Break-out discussion 2 (groups of ~6)

- How do (can) the components of IndOOS serve the scientific and operational goals? (start with Rapporteur summaries from day 2)

12h00-12h30 : Report back

- 5-minute pop-up report from each break-out group rapporteur and synthesis of ideas (facilitator **Lisa Beal**)

Wednesday 1st Feb, PM (White paper discussion: Self-identified authors of IndOOS Review only)

14h00-15h30:

- Use synthesis of ideas from the morning break-out sessions to frame the white paper
- Identify way forward, delegate writing responsibilities, draw up schedule

Wednesday 1st Feb, PM (IOP and SIBER business meetings)

16h00-17h30 : Separate IOP and SIBER panel Meetings for AOB

- Other panel business (e.g. memberships, endorsements etc)